

# Director's Report

In the past year all the ongoing activities of the Centre have been strengthened. The Pelletron accelerator maintained a high uptime delivering a variety of beams smoothly for conducting experiments, except for a breakdown of the fibre optic cable which the crew could fix. The integrated pulsing system has been increasingly used for experiments and worked well. The AMS facility has been fully tested and calibrated and user experiments have begun.

The problems observed during acceleration of beam through the first linac module have all been attended to successfully with the design of a new rf drive, slow tuner and a new cover flange for the resonators. Microphonic reduction experiments have been successful resulting in reduction of the required rf power for the cavities. We plan to have experiments with accelerated beam in beam hall II in a few months time. Work towards the construction of the high current injector is progressing well with the high  $T_c$  ECR source operating well and the RFQ prototype getting fabricated for testing. Design studies for the drift tube linac have begun and is expected to be completed in the first half of next year. Three out of the four beam lines in hall II have been commissioned and tested with beam from the Pelletron delivered to the target position.

First experiment with the neutron array was performed in beam hall II and the materials science line also has been fully calibrated with beam. The installation of the fourth beamline for HYRA-INGA set-up has begun and will be complete in the next two months.

The low energy ion beam facility continues to provide a wide variety of multiply charged ions for experiments in materials science and atomic physics. Experiments on ion induced molecular dissociation have given indication of a new mechanism for the formation of exotic molecular species in outer space.

The user support laboratories, viz., target lab, vacuum lab, detector lab, data support lab, workshop and the utilities continued their usually competent work of serving a large community of users.

As the INGA set-up continues to be stationed at VECC, the GDA set-up was revived and used for several nuclear physics experiments for high spin spectroscopy and g-factor measurements. HIRA was used for fission hindrance experiments this year. The first phase of HYRA has been installed in beam hall II and the design of

the INGA structure completed. Material science facilities have been all running smoothly and drew a large number of users, especially to the AFM and XRD set-ups.

The radiation biology set-up is being completely revamped and is expected to start functioning by middle of next year.

The programme of design of innovative experiments for teaching laboratories has added new cost-effective equipment which can be used even at the undergraduate level. The seminars, workshops and acquaintance programmes conducted by the Centre keep drawing enthusiastic new users to the expanding user base of IUAC.

We expect all the activities at the Centre to grow further in the coming year.

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**Amit Roy**